temperature of the reaction zone D is at least 20°C above the temperature of the reaction zone C.

7. (Amended) A process as claimed in claim 1, wherein the temperature of the reaction zone B is from 305 to 340°C.

8. (Amended) A process as claimed in claim 1, wherein the temperature of the reaction zone B is from 310 to 330°C.

9. (Amended) A process as claimed in claim 1, wherein the temperature of the reaction zone C is from 245 to 260°C.

10. (Amended) A process as claimed in claim 1, wherein the temperature of the reaction zone D is from 265 to 285°C.

11. (Amended) A process as claimed in claim 1, wherein the propene conversion in a single pass in the first reaction stage is ≥ 94 mol%.

12. (Amended) A process as claimed in claim 1, wherein the selectivity of the acrolein formation and of the acrylic acid byproduct formation together in a single pass in the first reaction stage is ≥ 94 mol%.

13. (Amended) A process as claimed in claim 1, wherein the acrolein conversion in a single pass in the second reaction stage is ≥ 94 mol%.

14. (Amended) A process as claimed in claim 1, wherein the selectivity of the acrylic acid formation balanced over both reaction stages is ≥ 85 mol%, based on propene converted.

15. (Amended) A process as claimed in claim 1, wherein the propene loading of the first fixed-bed catalyst is ≥ 165 l(S.T.P.)/l · h.

16. (Amended) A process as claimed in claim 1, wherein the propene loading of the first fixed-bed catalyst is ≥ 170 l(S.T.P.)/l · h.

17. (Amended) A process as claimed in claim 1, wherein the at least one inert gas contained in the reaction gas starting mixture 1 comprises ≥ 40% by volume of molecular nitrogen.

18. (Amended) A process as claimed in claim 1, wherein the at least one inert gas contained in the reaction gas starting mixture 1 comprises ≥ 60% by volume of molecular nitrogen.

19. (Amended) A process as claimed in claim 1, wherein the at least one inert gas contained in the reaction gas starting mixture 1 comprises steam.

20. (Amended) A process as claimed in claim 1, wherein the at least one inert gas contained in the reaction gas starting mixture 1 comprises CO_2 and/or CO.

21. (Amended) A process as claimed in claim 1, wherein the propene content of the reaction gas starting mixture 1 is from 4 to 15% by volume.

22. (Amended) A process as claimed in claim 1, wherein the active material of the first fixed-bed catalyst is at least one multimetal oxide of the formula I

$$Mo_{12}Bi_aFe_bX^1_cX^2_dX^3_eX^4_fO_n \qquad (I)$$

where

X^1 is nickel and/or cobalt,

X^2 is thallium, an alkali metal and/or an alkaline earth metal,

X^3 is zinc, phosphorus, arsenic, boron, antimony, tin, cerium, lead and/or tungsten,

X^4 is silicon, aluminum, titanium and/or zirconium,

a is from 0.5 to 5,

b is from 0.01 to 5,

c is from 0 to 10,

d is from 0 to 2,

e is from 0 to 8,

f is from 0 to 10 and

n is a number which is determined by the valency and frequency of the elements other than oxygen in I.

23. (Amended) A process as claimed in claim 1, wherein the active material of the first fixed-bed catalyst is at least one multimetal oxide of the formula II

$[Y^1_{a'}Y^2_{b'}O_{x'}]_p[Y^3_{c'}Y^4_{d'}Y^5_{e'}Y^6_{f'}Y^7_{g'}Y^2_{h'}O^7_{y'}]_q$ (II),

where

Y^1 is bismuth, tellurium, antimony, tin and/or copper,

Y^2 is molybdenum and/or tungsten,

Y^3 is an alkali metal, thallium and/or samarium,

Y^4 is an alkaline earth metal, nickel, cobalt, copper, manganese, zinc, tin, cadmium and/or mercury,

Y^5 is iron, chromium, cerium and/or vanadium,

Y^6 is phosphorus, arsenic, boron and/or antimony,

Y^7 is a rare earth metal, titanium, zirconium, niobium, tantalum, rhenium, ruthenium, rhodium, silver, gold, aluminum, gallium, indium, silicon, germanium, lead, thorium and/or uranium,

a' is from 0.01 to 8,

b' is from 0.1 to 30,

c' is from 0 to 4,

d' is from 0 to 20,

e' is from 0 to 20,

f' is from 0 to 6,

g' is from 0 to 15,

h' is from 8 to 16,

x',y' are numbers which are determined by the valency and frequency of the elements other than oxygen in II and

p,q are numbers whose ratio p/q is from 0.1 to 10,

containing three-dimensional regions which are delimited from their local environment as a result of their composition differing from their local environment and have the chemical composition $Y^1_{a'}Y^2_{b'}O_{x'}$, and whose maximum diameters are from 1 nm to 100 μm.

24. (Amended) A process as claimed in claim 1, wherein the first fixed-bed catalyst comprises annular and/or spherical catalysts.

27. (Amended) The process as claimed in claim 1, wherein the first and the second reaction stages are each carried out in a two-zone tube-bundle reactor.

28. (Amended) A process as claimed in claim 1, wherein the active material of the second fixed-bed catalyst is at least one multimetal oxide of the formula IV

$$Mo_{12}V_aX^1_bX^2_cX^3_dX^4_eX^5_fX^6_gO_n \qquad \text{(IV)}$$

where

X^1 is W, Nb, Ta, Cr and/or Ce,

X^2 is Cu, Ni, Co, Fe, Mn and/or Zn,

X^3 is Sb and/or Bi,

X^4 is one or more alkali metals,

X^5 is one or more alkaline earth metals,

X^6 is Si, Al, Ti and/or Zr,

a is from 1 to 6,

b is from 0.2 to 4,

c is from 0.5 to 18,

d is from 0 to 40,

e is from 0 to 2,

f is from 0 to 4,

g is from 0 to 40 and

n is a number which is determined by the valency and frequency of the elements other than oxygen in IV.

29. (Amended) A process as claimed in claim 1, wherein the active material of the second fixed-bed catalyst is at least one multimetal oxide of the formula VI

$$[D]_p[E]_q \qquad (VI),$$

where

D is $Mo_{12}V_{a''}Z^1_{b''}Z^2_{c''}Z^3_{d''}Z^4_{e''}Z^5_{f''}Z^6_{g''}O_{x''}$,

E is $Z^7_{12}Cu_hH_{i''}O_{y''}$,

Z^1 is W, Nb, Ta, Cr and/or Ce,

Z^2 is Cu, Ni, Co, Fe, Mn and/or Zn,

Z^3 is Sb and/or Bi,

Z^4 is Li, Na, K, Rb, Cs and/or H,

Z^5 is Mg, Co, Sr and/or Ba,

Z^6 is Si, Al, Ti and/or Zr,

Z^7 is Mo, W, V, Nb and/or Ta,

a" is from 1 to 8,

b" is from 0.2 to 5,

c" is from 0 to 23,

d" is from 0 to 50,

e" is from 0 to 2,

f" is from 0 to 5,

g" is from 0 to 50,

h" is from 4 to 30,

i" is from 0 to 20 and

x",y" are numbers which are determined by the valency and frequency of the elements other than oxygen in VI and

p,q are numbers other than zero whose ratio p/q is from 160:1 to 1:1,

which is obtainable by separately preforming a multimetal oxide material (E)

$Z^7_{12}Cu_{h''}H_{i''}O_{y''}$ (E)

in finely divided form (starting material 1) and then incorporating the preformed solid starting material 1 into an aqueous solution, an aqueous suspension or a finely divided dry blend of sources of the elements Mo, V, Z^1, Z^2, Z^3, Z^4, Z^5, Z^6, which contains the abovementioned elements in the stoichiometry D

$Mo_{12}V_{a''}Z^1_{b''}Z^2_{c''}Z^3_{d''}Z^4_{e''}Z^5_{f''}Z^6_{g''}$ (D)

(starting material 2), in the desired ratio p:q, drying any resulting aqueous mixture, and calcining the dry precursor material thus obtained, before or after it has been dried, at from 250 to 600°C to give the desired catalyst geometry.

30. (Amended) A process as claimed in claim 1, wherein the second fixed-bed catalyst comprises annular catalysts.